

Application Note APP02

Supply Partners RS485 Meter Link Kit Setup

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1. Power meter radio communication setup

This application note describes how to connect a Redback inverter to a remote Acrel ACR10R or Redback SM3000 power meter using a RF transceiver pair (instead of an Ethernet cable).

The status, direction, and extent of power flow at the point of connection to the utility network is important information for the correct operation of the Redback inverter.

A standard Redback installation uses ethernet cable to communicate with the power meters.

In some large properties, usually in rural areas, the distance and terrain, and in some cases the nature of the pavement between the point of supply and the inverter renders laying a communication cable impractical.

In these cases, a point-to-point link can be created using paired Serial Device Server USR-W610 RF Transceivers, supplied by Supply Partners.



2. Supply Partners SP RS485 Meter Link Kit

The USR-IOT units come in two separate boxes with the pair configured as server and client. Each box includes a USR-W610 unit and a power supply unit (PSU). In addition to the Supply Partners kit, you will need two communication leads to connect the Serial Device Server transceivers to the inverter's KWH Meter port and the Meter's RS485 port on either side of the communication link.

These cables can be manufactured from the 10m communications cable supplied with the inverter.



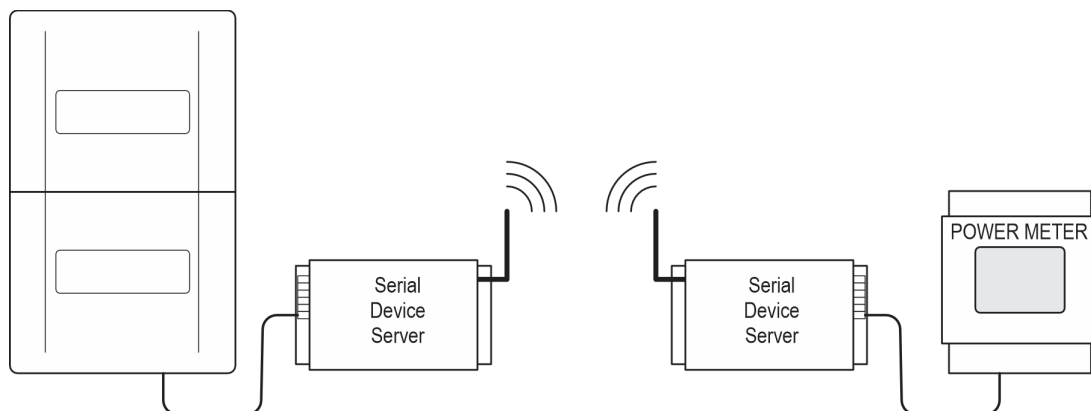
3. Installation layout

The USR-W610 units operate at 2.4GHz. The layout of the communication link is shown below.

Direct line of sight installation provides the best performance: obstructions will reduce the range of the link. Unobstructed, the kit has a range of up to 280m.

However metallic obstructions such as meter boxes or tin shed walls will block the signal rendering the link unusable. These factors need to be given due considerations when doing an installation.

Note: The Serial Device Server units are not weatherproof.



4. Software setup of the transceivers

The units are programmed as a matched pair, tested by the supplier, and are ready for installation.

5. Installation procedure

The Serial Device Server™ USR-W610 units are designated 'Server' and 'Client' as shown below.



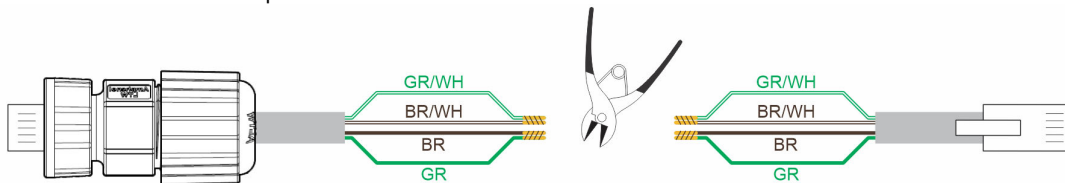
5.1 Find a suitable location for the RF units and GPOs.

The transceivers are not weatherproof: a waterproof enclosure may be required to house the units such that line of sight installation can be achieved.

Permanent access to a 240V GPO is required. Installation of a new GPO may be required.

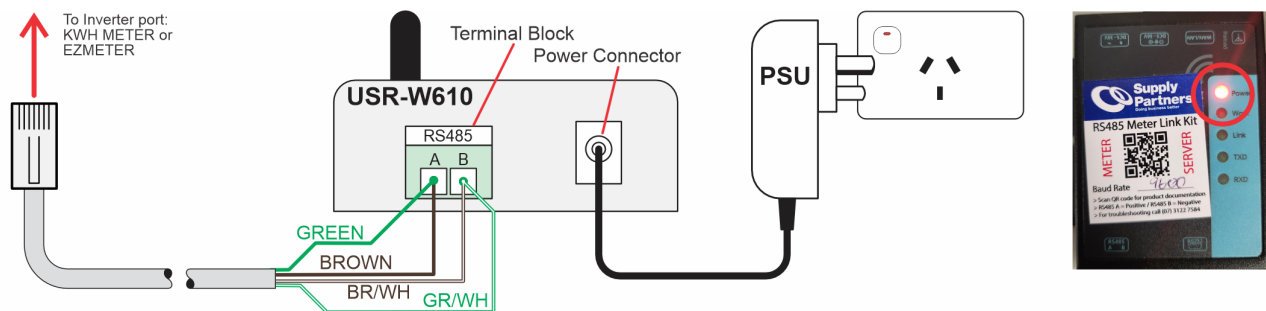
5.2 Fabricate and route the communication cables

1. Fabricate two cables from the 10m comms cable supplied: Cut the cable to the required lengths and bare the Brown, Brown/White, Green and Green/White wires.
2. Twist Brown and Green together.
3. Twist Brown/White and Green/White together.
4. Route the cables as required.



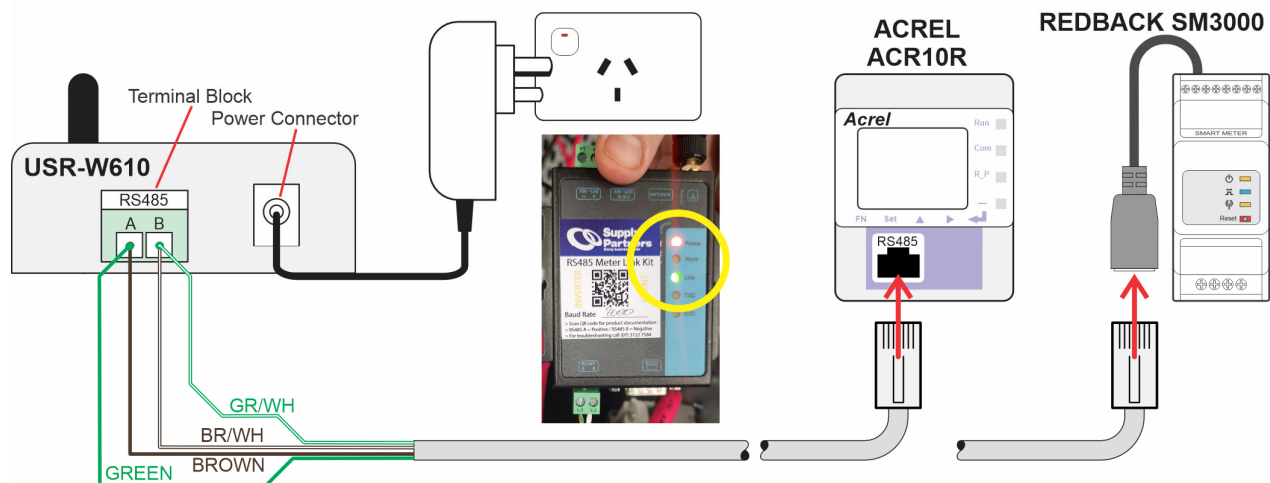
5.3 Connect the first transceiver

1. At the inverter, connect the first transceiver as shown below, noting pin assignments.
2. Connect the power supply to first USR-W610 and plug into an AC power outlet. The red Power LED light should illuminate.
3. Ensure correct antenna/aerial is connected.



5.4 Connect the second transceiver

1. Connect the second USR-W610 to the chosen Power Meter, noting pin assignments.
2. Connect the power supply to the second USR-W610 and plug into an AC power outlet. The power and link LEDs will illuminate, indicating the RF comm's link is established.



5.5 Switch the inverter ON

The transmit (tx) and receive (rx) LEDs on each unit will flash intermittently, indicating data traffic. The Work LED on the power meter will also flash intermittently.

6. Further assistance

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